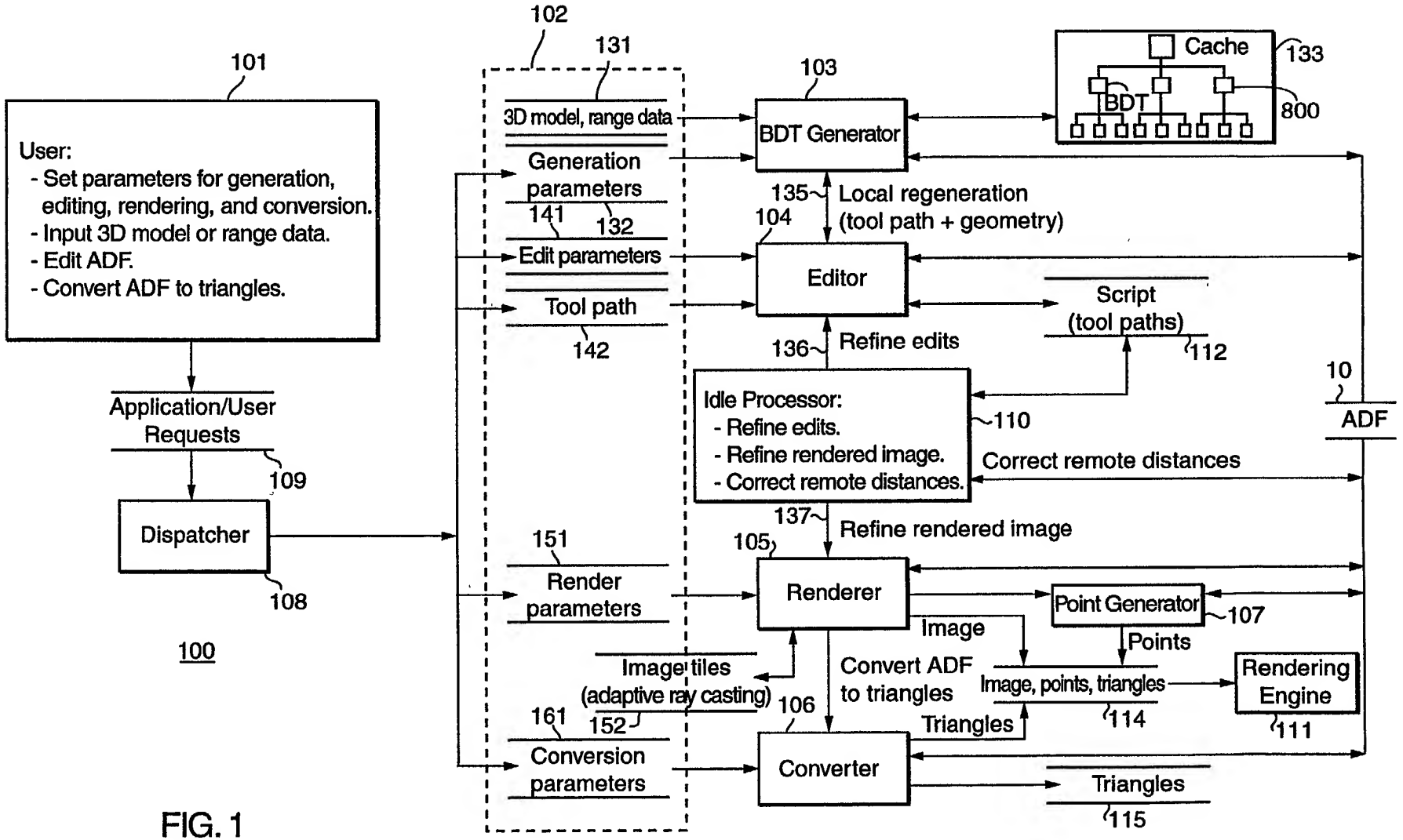


FIG. 1

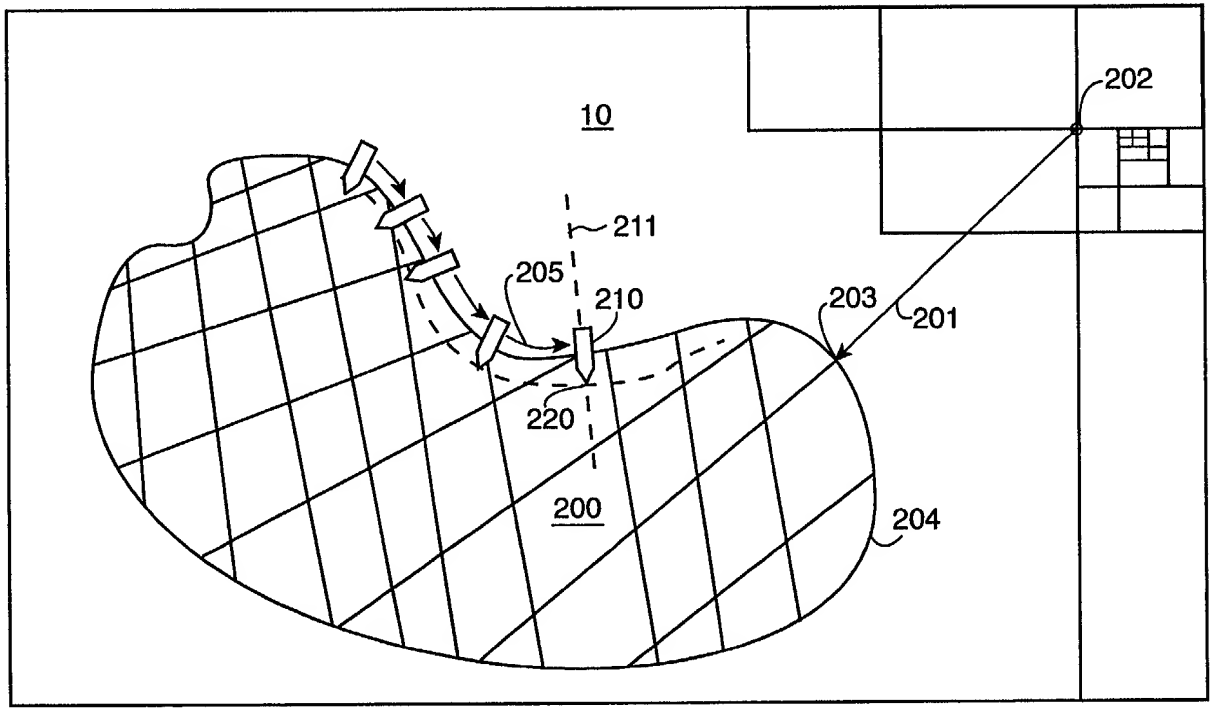


FIG. 2

FIG. 3a

FIG. 3b

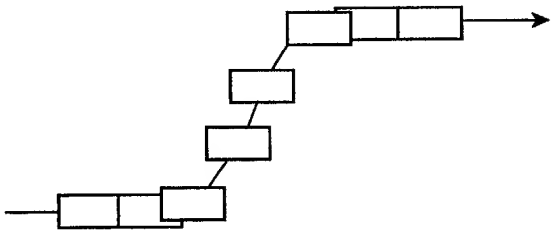


FIG. 3c

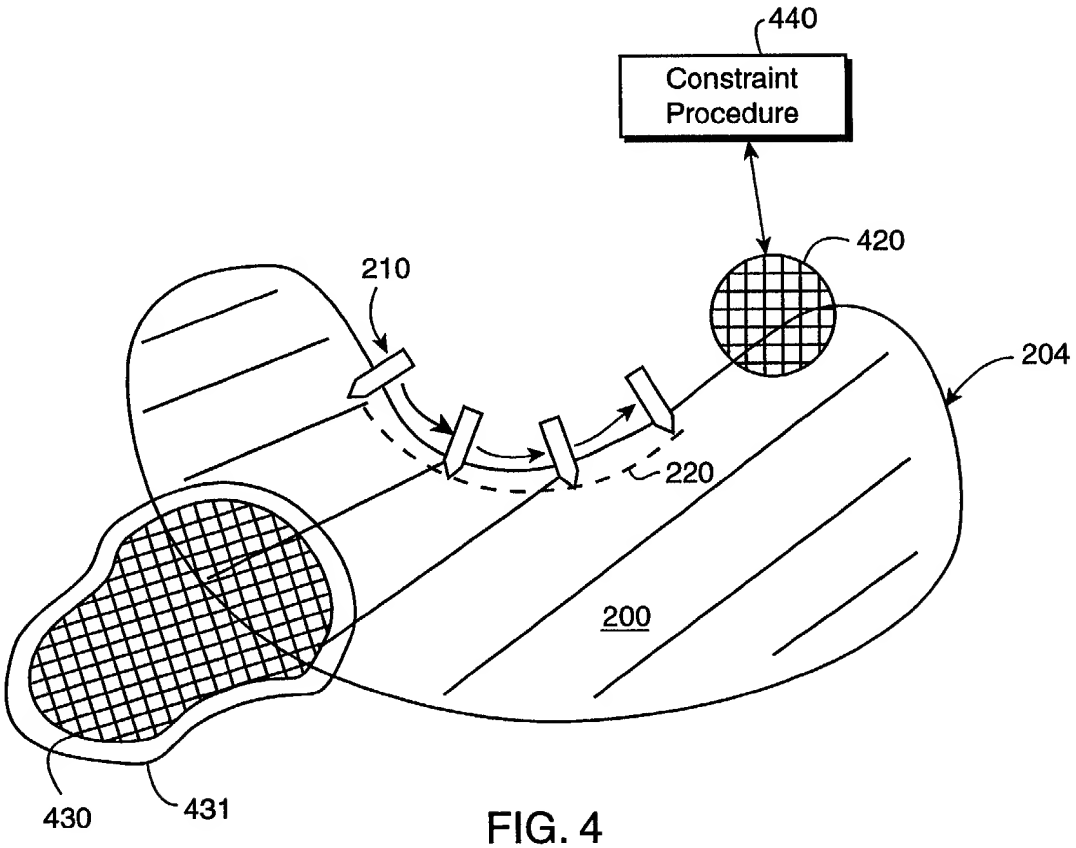


FIG. 4

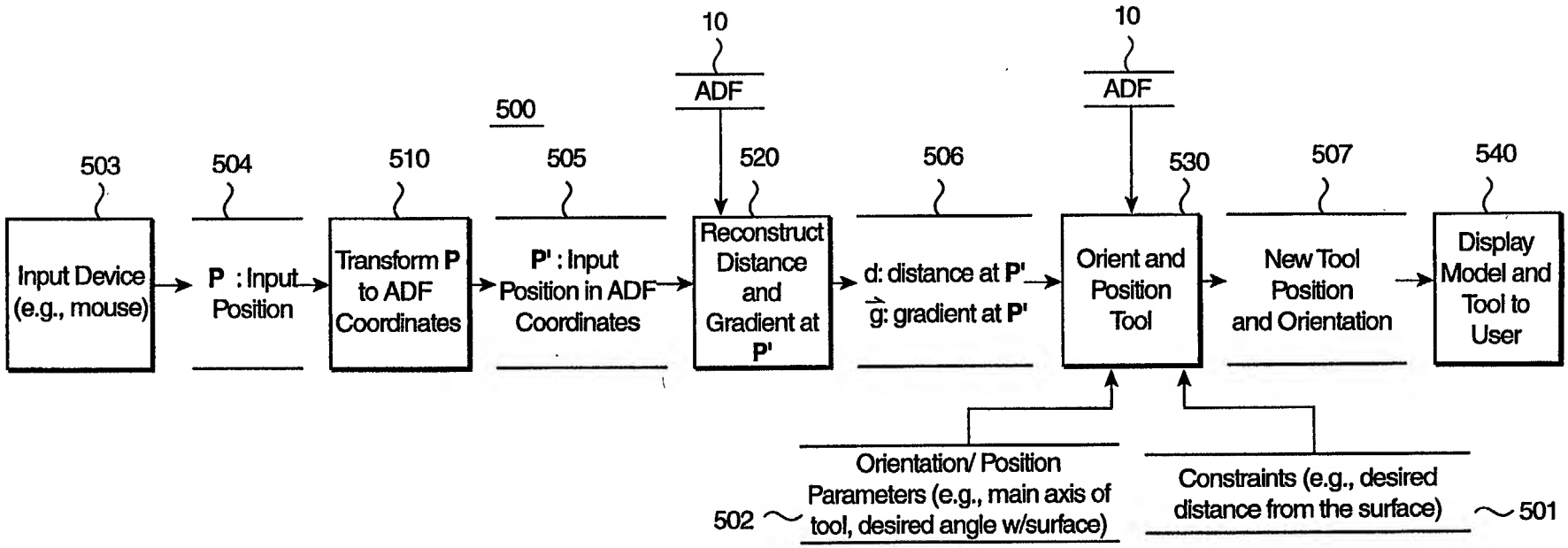
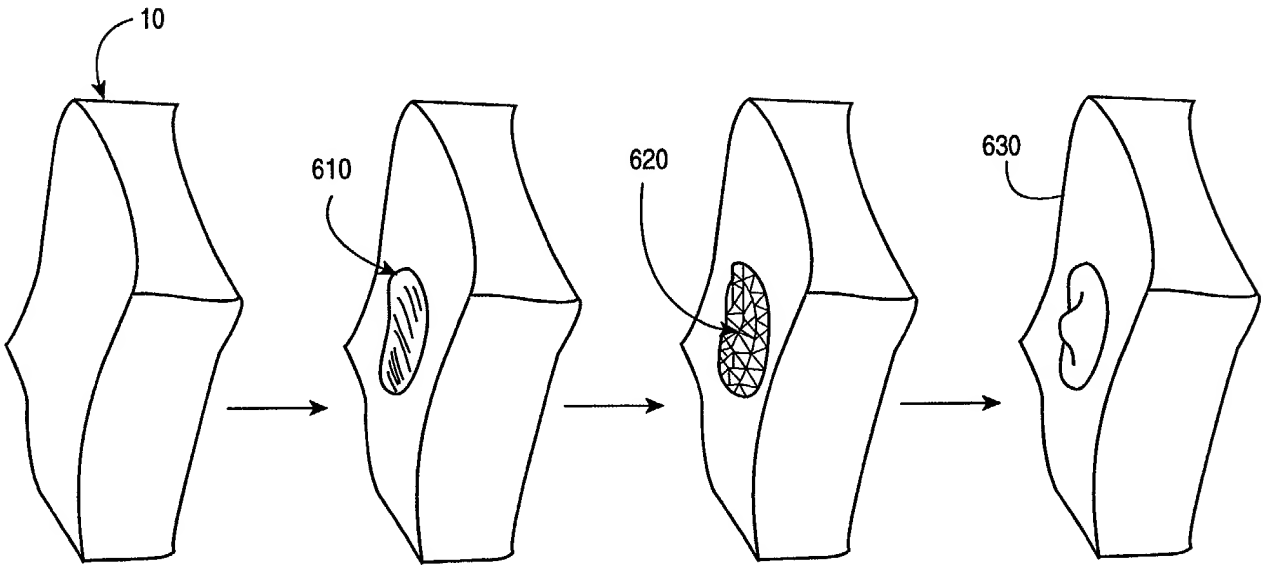


FIG. 5

FIG. 6



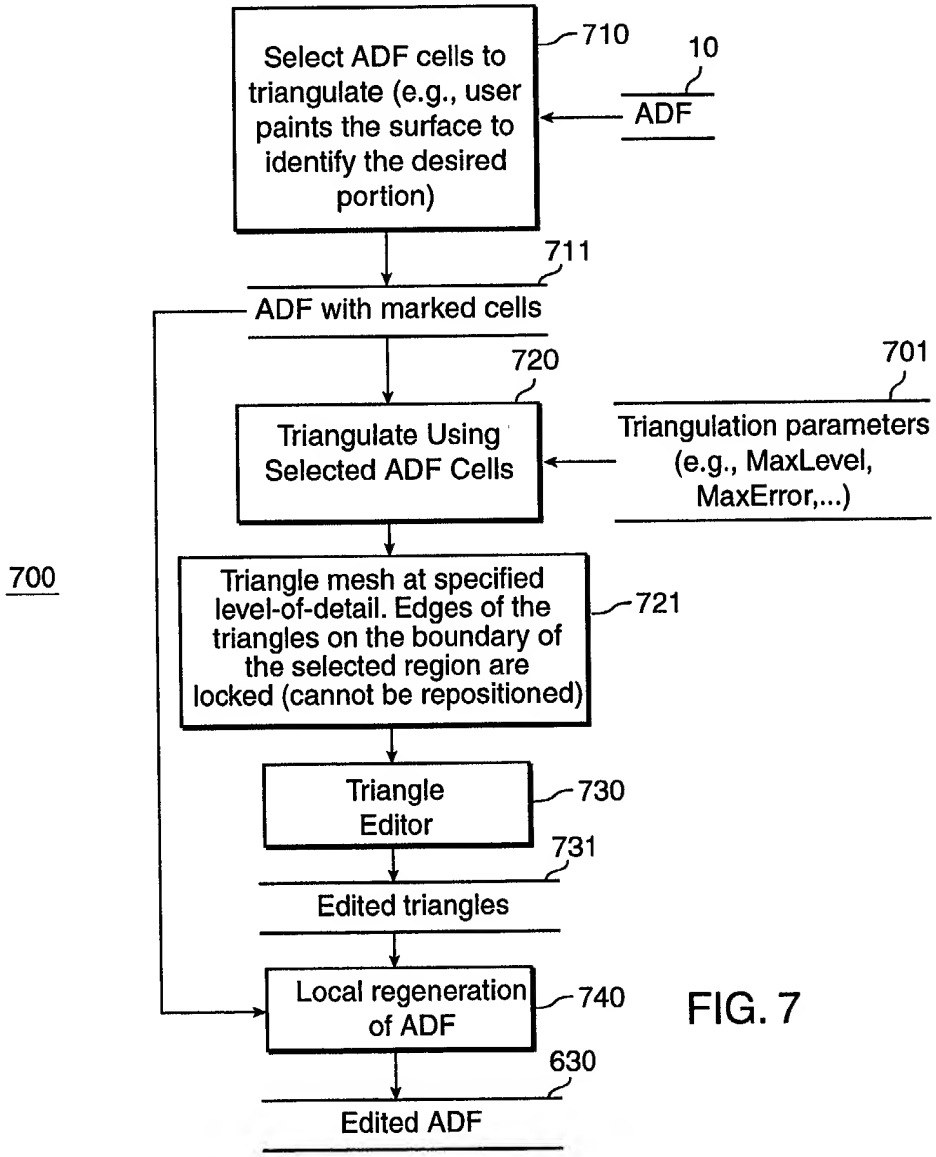

Select ADF cells to triangulate (e.g., user paints the surface to identify the desired portion)
710
10
ADF
711
ADF with marked cells
720
701
Triangulate Using Selected ADF Cells
Triangulation parameters (e.g., MaxLevel, MaxError,...)
700
Triangle mesh at specified level-of-detail. Edges of the triangles on the boundary of the selected region are locked (cannot be repositioned)
721
Triangle Editor
730
731
Edited triangles
Local regeneration of ADF
740
630
Edited ADF

FIG. 7

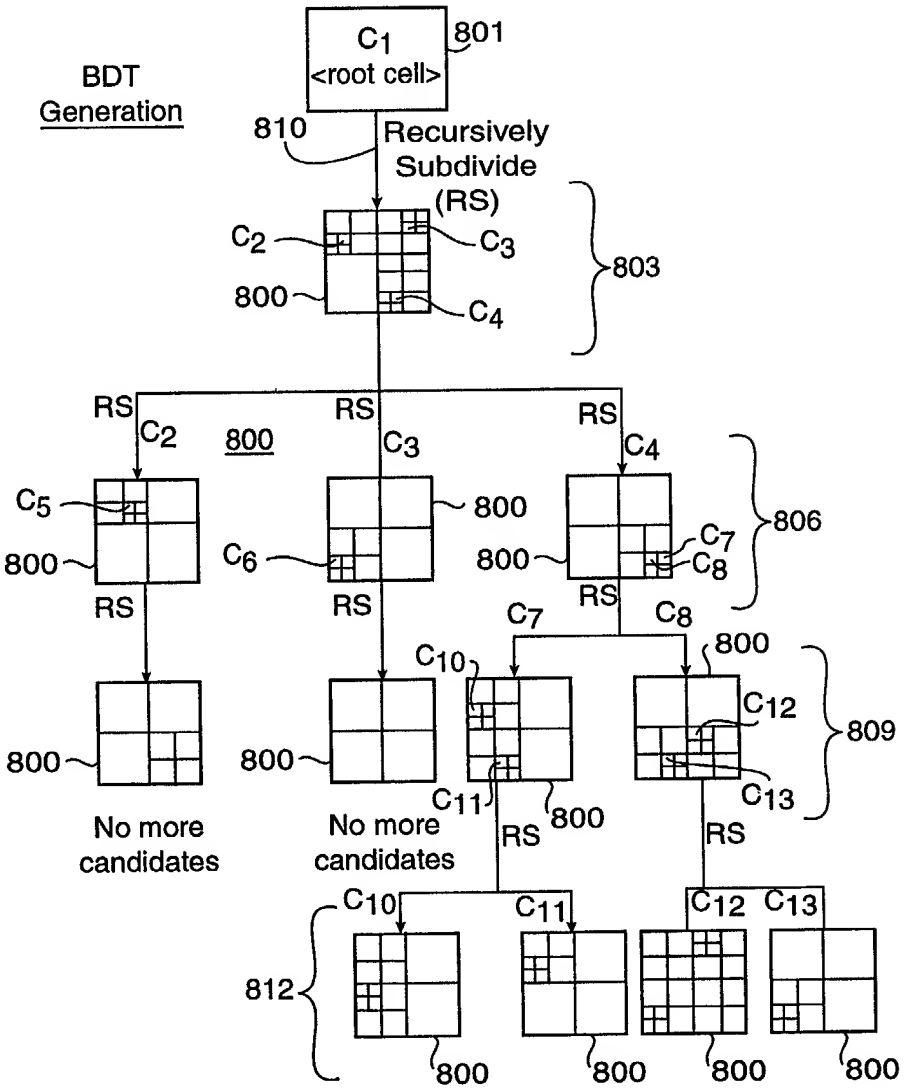


FIG. 8

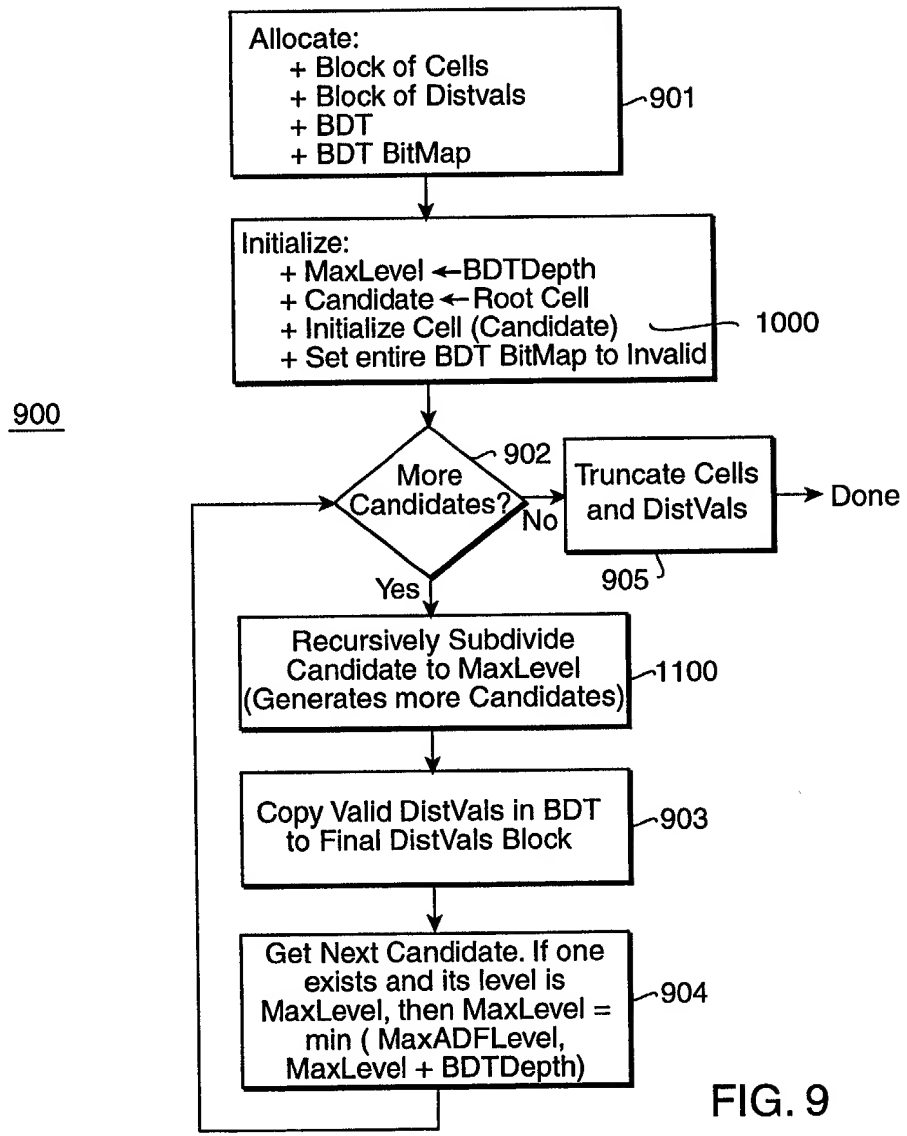

900
Allocate:
+ Block of Cells
+ Block of Distvals
+ BDT
+ BDT BitMap
901
Initialize:
+ MaxLevel ← BDTDepth
+ Candidate ← Root Cell
+ Initialize Cell (Candidate)
+ Set entire BDT BitMap to Invalid
1000
More Candidates?
902
No
Truncate Cells and DistVals
Done
905
Yes
Recursively Subdivide Candidate to MaxLevel (Generates more Candidates)
1100
Copy Valid DistVals in BDT to Final DistVals Block
903
Get Next Candidate. If one exists and its level is MaxLevel, then MaxLevel = min (MaxADFLevel, MaxLevel + BDTDepth)
904

FIG. 9

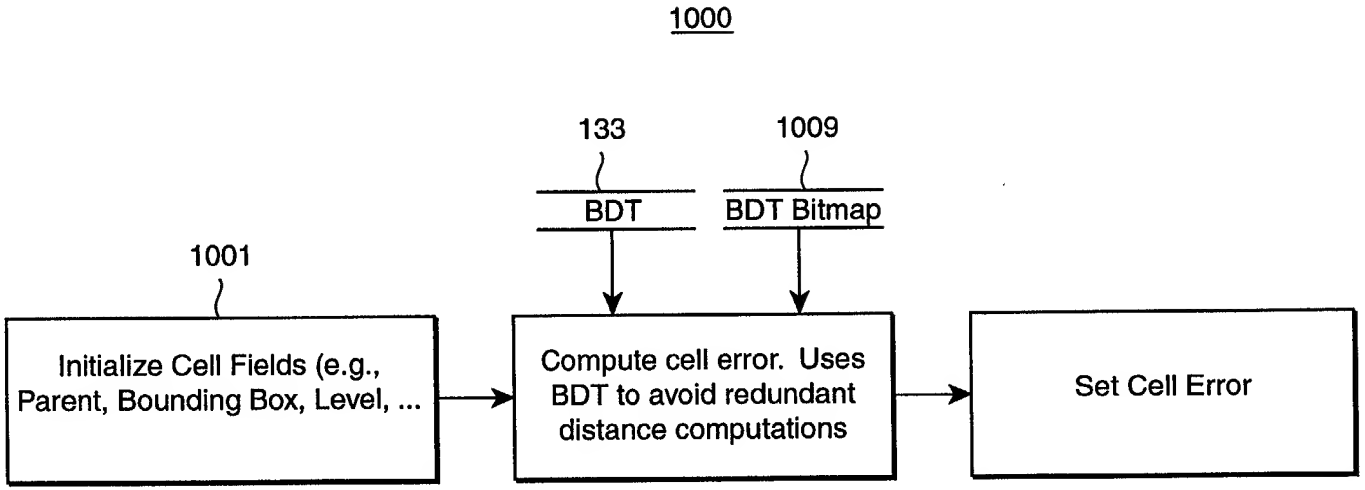


FIG. 10

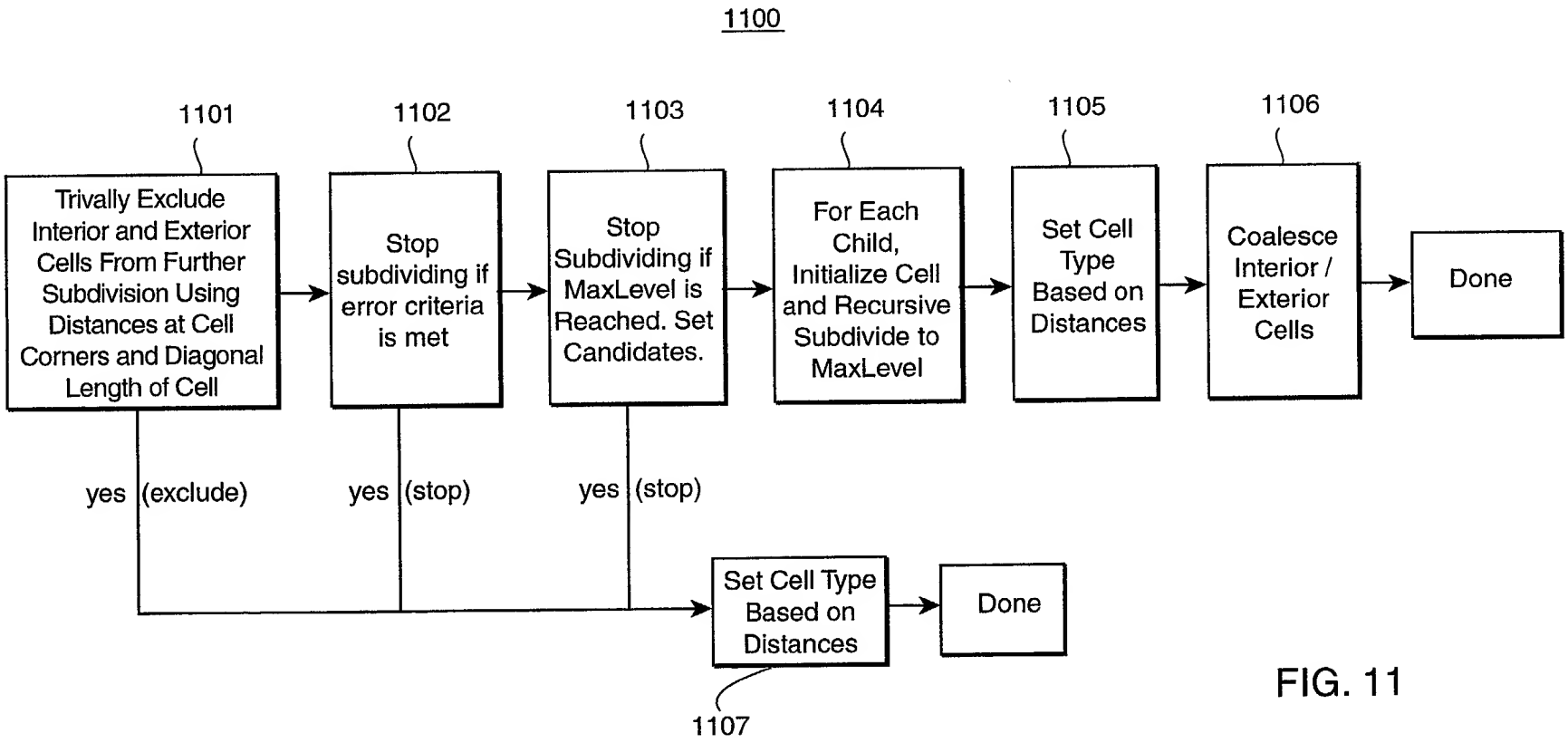


FIG. 11

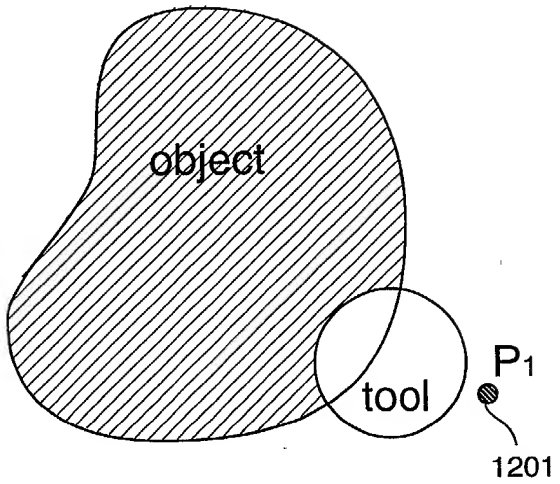


FIG. 12a

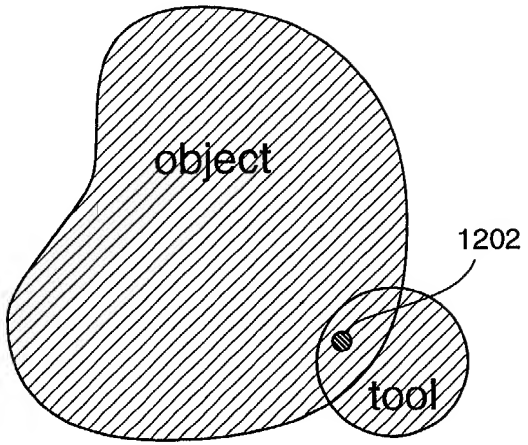


FIG. 12b

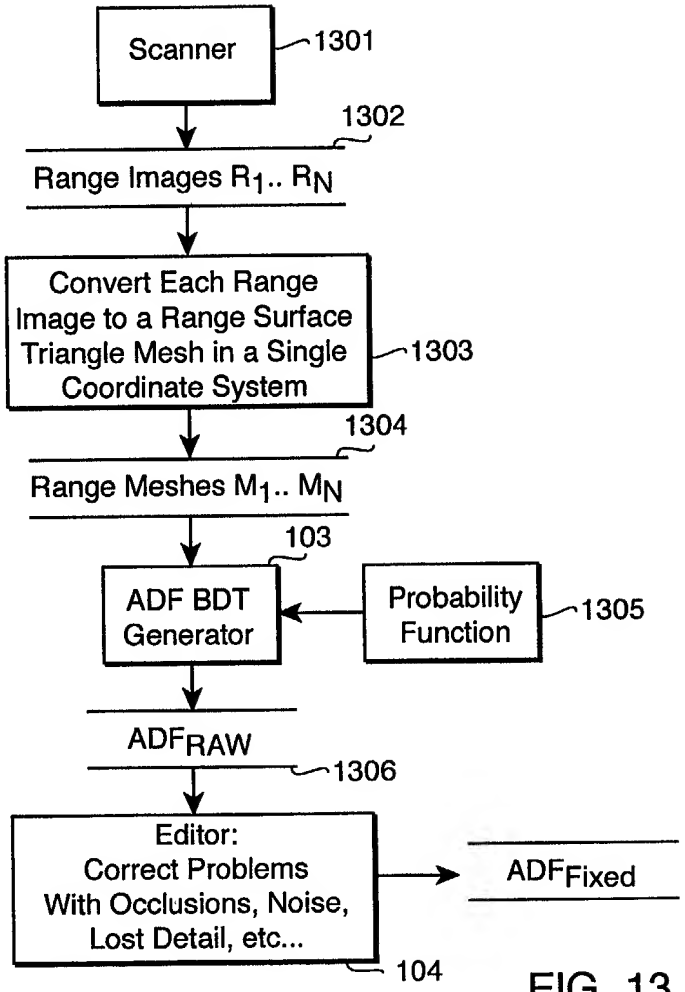


FIG. 13

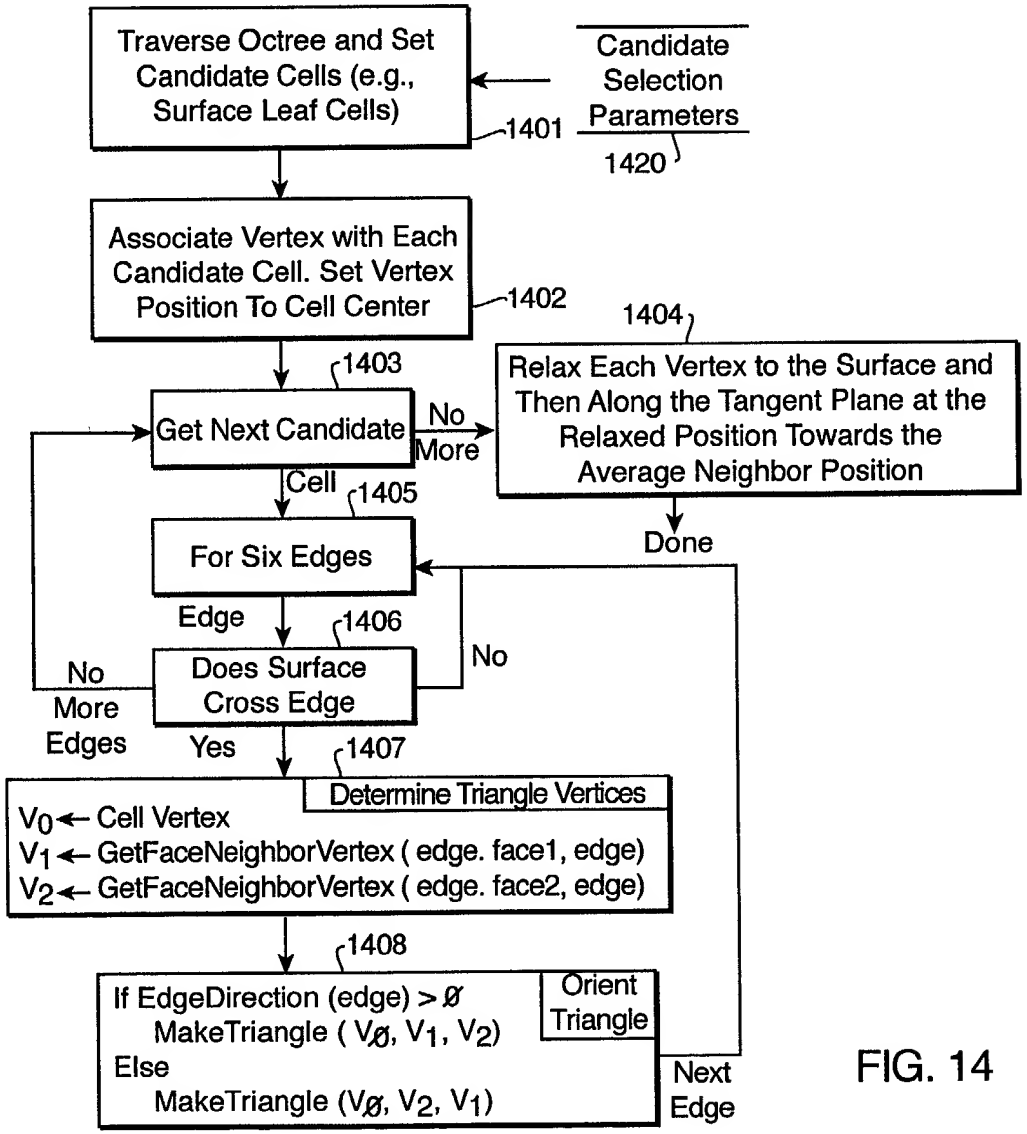


FIG. 14

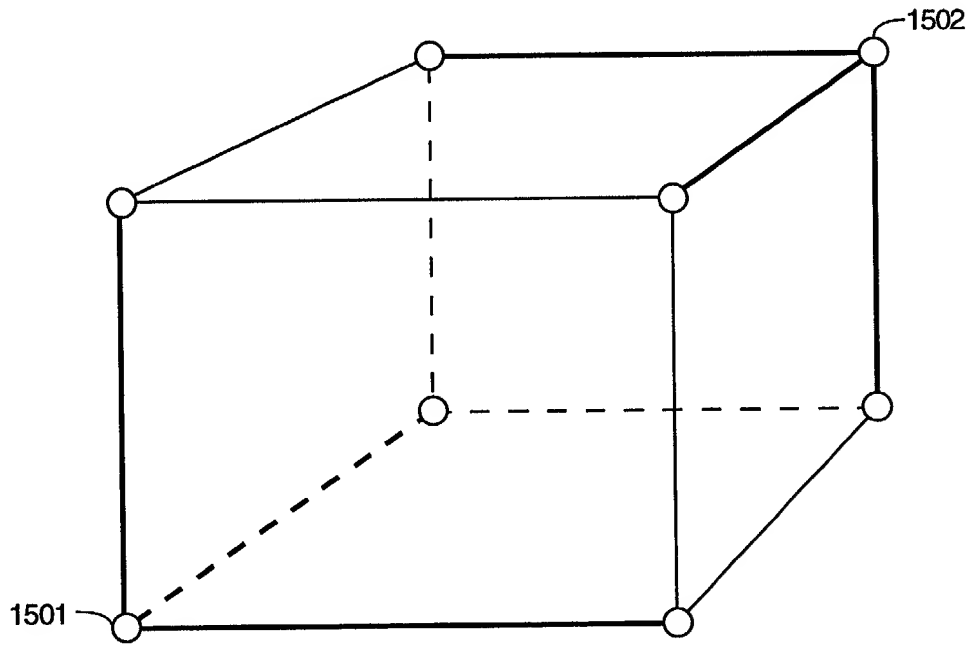


FIG. 15

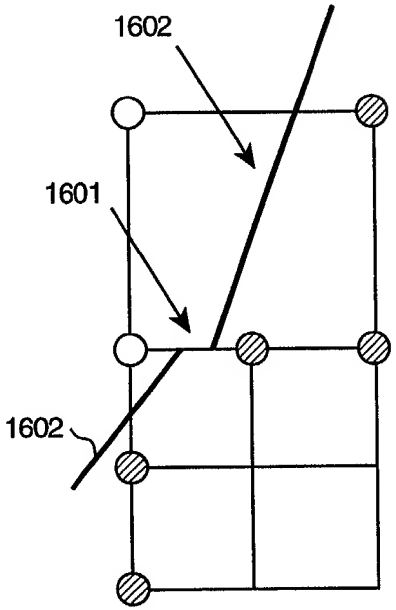


FIG. 16a

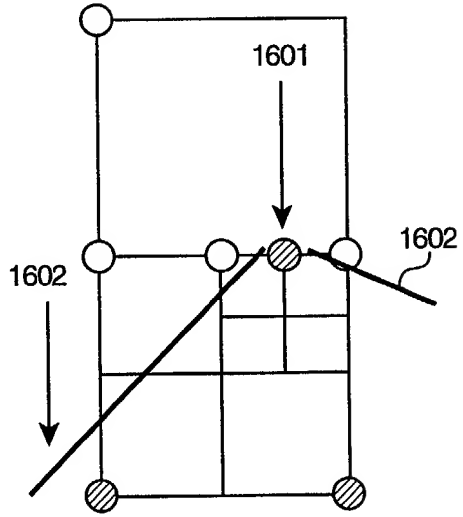


FIG. 16b

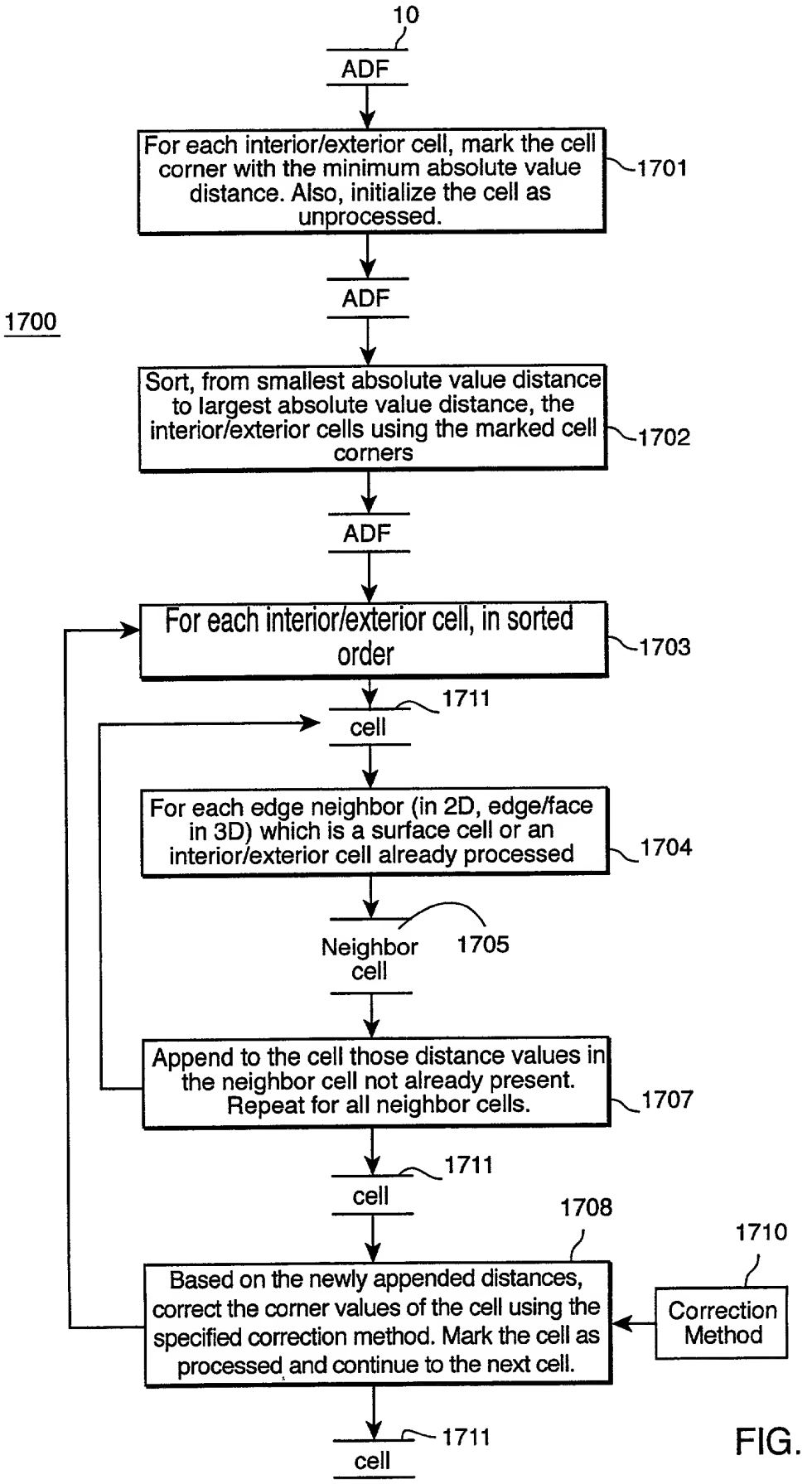

10
ADF
For each interior/exterior cell, mark the cell corner with the minimum absolute value distance. Also, initialize the cell as unprocessed.
1701
ADF
1700
Sort, from smallest absolute value distance to largest absolute value distance, the interior/exterior cells using the marked cell corners
1702
ADF
For each interior/exterior cell, in sorted order
1703
1711
cell
For each edge neighbor (in 2D, edge/face in 3D) which is a surface cell or an interior/exterior cell already processed
1704
Neighbor cell
1705
Append to the cell those distance values in the neighbor cell not already present. Repeat for all neighbor cells.
1707
1711
cell
1708
1710
Based on the newly appended distances, correct the corner values of the cell using the specified correction method. Mark the cell as processed and continue to the next cell.
Correction Method
1711
cell

FIG. 17